



# WOLFE DRILLING & BLASTING, INC.

M/023/023

H.E. Davis  
John Childs Mine Manager  
Levan Project

RECEIVED

MAY 14 2004

DIV OF OIL GAS & MINING

Re: Blast and Monitor report

John;

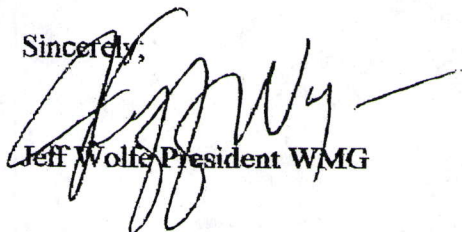
Attached is the report from VCE and independent engineering firm out of Las Vegas. As you see as we knew the machines will not trigger. Arron from VCE attached some additional material for you to look at.

We are being charged \$ 500.00 per day to use both machines and produce a print out. We cannot continue to absorb this especially when there is no way these machines will trigger. The vertical distance is approximately 1000 feet and horizontal is approximately 1000 feet.

VCE will meet for you and the State for a fee, with Levan city and show them the basics of ground movement. Arron said at those vertical and horizontal distances he said there is a 100% chance the machines will not trigger.

We want H.E Davis and the Oil Gas people to feel comfortable about what we are doing. We will do all we can to help.

Sincerely;



Jeff Wolfe President WMG

## TYPICAL VIBRATION CRITERIA

(continued:)

**1.0 ips** OSM regulatory limits for residences near surface mine operations at distances of 300,-5000 ft. (long-term, large-scale blasting)

**0.75 ips** Recommended guideline for sheetrock construction near surface mines. (RI 8507)

**0.5 ips** Recommended guideline for plaster-on-lath construction near surface mines (long-term, large-scale blasting operations). (RI 8507)

**0.03 ips** Vibrations are detectable to people.

**0.00 ips** No vibrations.

Suggestions for a Quality Assurance Program for Blasting Adjacent to Natural Gas Pipelines

XI.) *Pipeline Vibration Limitations* – Experimentation suggests that buried pipelines are relatively resistant to blast vibrations (USBM). \*NOTE- Peak particle velocity / frequency vibration limits are not intended to represent the vibration tolerance of buried pipelines. Research has shown that buried pipelines can tolerate far higher velocities in the form of elastic vibration. The following criteria is considered as a secondary approach to limiting ground movement (adapted from L.L. Oriard, "Vibration and Ground Rupture Criteria for Buried Pipelines", 1994).

Pipeline vibration limitation ranges:

5 in./sec.;	up to	12 in./sec.;
large surface mine blasts,		construction / short duration blasting,
lower frequencies @ 10Hz,		higher frequencies
(high strain producing vibration)		(low strain producing vibration).

Site-specific considerations i.e. information regarding operating pressure of the pipeline, wall thickness, backfill, pipe construction, pipe assembly, leakage records, age/deterioration of the pipe, geology, drilling, explosive and overburden will help to determine a conservative pipeline vibration range necessary to protect the adjacent buried pipeline.

\*Note, recent research has suggested that vibration is not the leading cause for pipeline failures associated with blasting. There are no documented cases of vibration-induced damage to pipelines. (John Floyd Blast Dynamics, 1994; USBM Siskind and Stagg, 1992; L.L. Oriard, 1994; Jim Ludwiczak, 1993) Recent federal government research has concluded that they cannot establish vibration limits for buried pipelines/utilities.

---

**H.E. DAVIS / LEVAN**

---

TO: WOLF DRILLING & BLASTING / JENNIFER WOLF  
FROM: VCB, INC. AARON M. JONES  
SUBJECT: LEVAN SHOT ON 4/12/04  
DATE: 5/11/04  
CC:

---

**LEVAN SHOT ON 4/12/04 @ 10:55**

Thomas Instruments VMS200s SN - 200203 did not trigger vibration was <0.05 in/sec &  
<120 dB.

Thomas Instruments VMS200s SN - 200070 did not trigger vibration was <0.05 in/sec &  
<120 dB

Aaron M. Jones

  
Field Services Manager

## BLAST REPORT

Date: <u>4/12/04</u>		Exact time of shot: <u>10:53</u>	
Customer: <u>H.E. Davis</u>		P.O. # <u>10225</u>	
Job location: <u>Levan</u>		Ticket NO. _____	
Type Expl: <u>ANFO</u>		Primer: <u>1 1/4 x 12 Dyno MC</u>	
Type of Material: <u>Gypsum</u>		Face Height: <u>36 +</u>	
NO. of Holes: <u>63</u>		Hole DIA. <u>3 1/4</u>	
NO. of Holes: _____		Hole DIA. _____ Powder Factor _____	
Burden <u>9</u>		Ft. Spacing <u>9</u> Ft. Hole depth <u>12 - 36</u> ft.	
Amount stemming <u>6 - 7</u>		Ft. Weather <u>Sunny hot</u>	
Wind <u>0</u>		Mats? <u>0</u> No. of persons on blast crew <u>3</u>	
Blaster in Charge: <u>Trevor Black</u> Signature: <u>[Signature]</u> License No. _____		Names 1) <u>Gary</u> HRS. _____	
		Names 2) <u>Jan</u> HRS. _____	
		Names 3) _____ HRS. _____	
		Names 4) _____ HRS. _____	
		Names 5) _____ HRS. _____	
		Names 6) _____ HRS. _____	
		Names 7) _____ HRS. _____	
Comments: <u>Shot went well broke good</u> <u>Some big rock</u> <u>Little sound</u>			
Monitor: <u>L</u> <u>T</u> <u>V</u> <u>PVS</u> <u>dB</u>		Distance to blast _____ Max. pounds per delay <u>100</u>	
Hours loading _____		TOTALS <span style="float: right;">1.40</span>	
ANFO <u>96 bags</u>		Yards of rock <u>5364</u>	
Boxes powder <u>63 sticks of Dyno MC</u>		Caps <u>63 SNARDETS</u>	
Boxes powder _____		Size <u>1 1/4 x 12</u>	
Boxes powder _____		Size _____	
E-Cord _____		Other _____	
Primateine _____		Slurry Amount _____ Size _____	

Notes please draw sketch of shot on back

Tel: (800)-747-3844

VCE, Inc.

Fax: (702)-855-0274

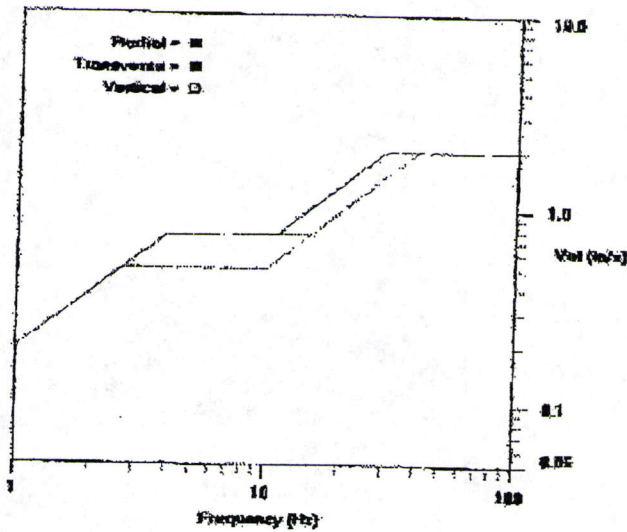
## VIBRATION REPORT

## Peak Measurements

Event Name: 21Y4A83N  
 Recording Time: 08:07:46 - 10:05:46  
 Recording Date: 04-10-04  
 Project: Geneva Rock  
 Client: Wolf Drilling & Blasting  
 Shot Location: Draper, UT  
 Operator: Jennifer Wolf  
 Monitor Location:  
 Data Cassette No.:  
 Distance / Max lbs. per Delay: / 902.5 lbs.

	Vertical	Transverse	Radial
PPV (in/s)	0.03	0.03	0.04
Freq (Hz)	11.9	10.0	4.0
Time (ms)	0	11	729
PPA (g)	0.01	0.0	0.0
PPD (in)	0.0003	0.0004	0.0015
PVS (in/s)	0.04 @ 729.3ms		
PSPL (psi)	0.0006021 (106.35 dB) @ 821.3ms		
PSPL Freq	32.0Hz		
Sensor Test	Passed	Passed	Passed

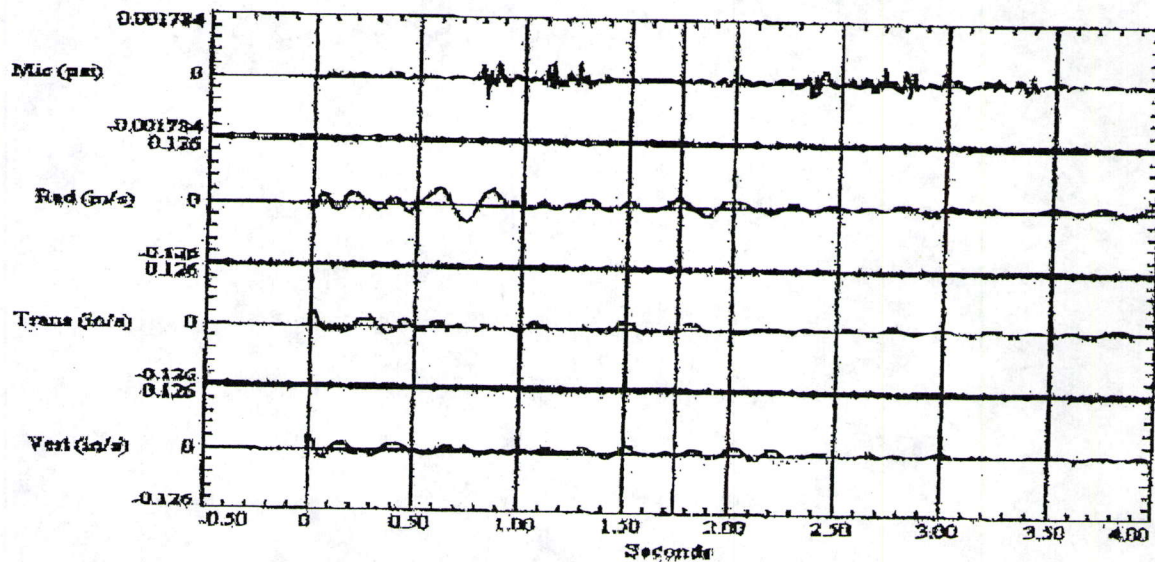
## OSM and USOM RMS/2 Analysis



**THOMAS**  
 INSTRUMENTS INC.

## System Configuration

Serial Number: V2-K147070  
 Calibration Date: December 12, 2003  
 Model: VMS-200S  
 Geo Trigger: 0.02(m/s)  
 Mic Trigger: (120 dB) .002921(psi)  
 Record Time (s): 4



This page is a reference page used to track documents internally for the Division of Oil, Gas and Mining

Mine Permit Number M0230016 Mine Name Levan Gypsum  
Operator Geneva Rock Date May 14, 2004  
TO \_\_\_\_\_ FROM \_\_\_\_\_

☐ CONFIDENTIAL ☐ BOND CLOSURE ☐ LARGE MAPS ☒ EXPANDABLE  
☐ MULTIPUL DOCUMENT TRACKING SHEET ☐ NEW APPROVED NOI  
☐ AMENDMENT ☐ OTHER \_\_\_\_\_

Description YEAR-Record Number

☐ NOI ☒ Incoming ☐ Outgoing ☐ Internal ☐ Superceded

Letter - VCE independent engineering  
firm.

☐ NOI ☐ Incoming ☐ Outgoing ☐ Internal ☐ Superceded

☐ NOI ☐ Incoming ☐ Outgoing ☐ Internal ☐ Superceded

☐ NOI ☐ Incoming ☐ Outgoing ☐ Internal ☐ Superceded

☐ TEXT/ 8 1/2 X 11 MAP PAGES ☐ 11 X 17 MAPS ☐ LARGE MAP

COMMENTS: \_\_\_\_\_

CC: \_\_\_\_\_